

The flies from Sarawak, East Malaysia (Diptera: Muscidae, Calliphoridae, Sarcophagidae and Tachinidae)

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Abstract: The collection of Muscidae, Calliphoridae, Sarcophagidae and Tachinidae made by the first author during the field surveys in Sarawak, East Malaysia between 2005 and 2006 is dealt with. A total of 39 genera and 67 species are listed. A new species of the sarcophagid fly, *Parasarcophaga omari* sp. nov. is described and illustrated.

Key words: Muscidae, Calliphoridae, Sarcophagidae, Tachinidae, East Malaysia, new species

INTRODUCTION

The present study is a partial result of the project entitled as "Study on taxonomy and bionomics of two winged flies, Diptera in Sarawak, East Malaysia" and conducted with the coordination and cooperation with the Sarawak Museum in Kuching. It was initiated in 2005 where the Japanese team (Representative: Dr. I. Miyagi) collected and identified mosquitoes and flies for the Sarawak Museum collection and database. It was our sincere intention to assist the Sarawak Museum (Sarawak Government) in collecting and documenting the complete fauna and bionomics of two-winged flies in Sarawak over the years. The research was carried out in various habitats such as primary forests, farms, mangroves and beaches including some parts of National Parks in 2005 and 2006. The researchers obtained the necessary permits from the Director of Forestry Department Sarawak to conduct research on Diptera (Two-winged flies) for taxonomic studies.

During the field survey in our collaborated project, the first author tried to collect flies in different localities and various habitats in order to make a good series of reference collections for the Sarawak Museum (Natural History Reference Collection), Kuching. The collected samples were mounted with insect pins in good order. All specimens were sorted into families. Most samples were grouped into so called higher Diptera such as the families Muscidae, Calliphoridae, Sarcophagidae and Tachinidae. We have examined 8 genera and 15 species of Muscidae, 15 genera and 25 species of Calliphoridae, 11 genera and 21 species of Sarcophagidae, and 5 genera and 6 species of Tachinidae.

Among 21 species of Sarcophagidae, we found one undescribed species which has never been recorded from other areas than Sarawak and will be included in the subgenus *Curranea* of the genus *Parasarcophaga*. We describe this new species with illustration of the male genitalia and report the 66 known species examined and identified in the present paper.

Identified specimens are mostly preserved in the Sarawak Museum (as Natural

History Reference Collection), Kuching. Some were shared and deposited in the National Science Museum, Tokyo as indicated in [] in the list of species below. Genera and species are listed alphabetically under the higher taxa. New country records are indicated with an asterisk (*).

Family MUSCIDAE

Dichaetomyia malayana Malloch, 1928

Dichaetomyia malayana Malloch, 1928: 312. Type locality: Lubok Tamang, Pahang, Malaya [Malaysia].

Material examined. 1♀, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM).

Dichaetomyia prolixa pallidorsis van Emden, 1965

Dichaetomyia prolixa pallidorsis van Emden, 1965: 377. Type locality: Suduganga, Ceylon [Sri Lanka].

Material examined. 1♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM).

Dichaetomyia quadrata (Wiedemann, 1830)

Anthomyia quadrata Wiedemann, 1830: 52. Type locality: Java [Indonesia].

Material examined. 13♂ 24♀, Serian, Mt. Sedong, Kampung Tarat, 23, 27.ix.2003 (1♀), H. Kurahashi (SM) [7♂ 7♀ > NSMT (gift)].

Hydrotaea chalcogaster (Wiedemann, 1824)

Anthomyia chalcogaster Wiedemann, 1824: 52. Type locality: Java [Indonesia].

Material examined. 2♂, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM); 1♂ 1♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM); 1♂, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM); 1♂ 1♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005, H. Kurahashi (SM).

Hydrotaea spinigera (Stein, 1910)

Ophyra spinigera Stein, 1920: 555. Type locality: Singapore.

Material examined. 5♀, Semengok W. R. C., 24.ix.2005, H. Kurahashi (SM) [1♀ > NSMT (gift)]; 3♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM) [1♀ > NSMT (gift)]; 1♀, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM) [1♀ > NSMT (gift)]; 8♂ 33♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005 (4♂ 26♀), 1–3.x.2005 (4♂ 7♀), H. Kurahashi (SM) [5♂ 7♀ > NSMT (gift)].

Limnophora exigua (Wiedemann, 1830)

Anthomyia exigua Wiedemann, 1830: 658. Type locality: China.

Material examined. 1♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005, H. Kurahashi (SM).

Musca asiatica Shinonaga and Kano, 1977

Musca asiatica Shinonaga and Kano, 1977: 111. Type locality: Khao Yai, 60 km S of Pak Chong, Thailand.

Material examined. 17♂ 25♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM) [7♂7♀ > NSMT (gift)]; 1♂, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM); 1♂, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM).

***Musca domestica* Linnaeus, 1758**

Musca domestica Linnaeus, 1758: 596. Type locality: Europe; America.

Material examined. 7♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM).

***Musca ventrosa* Wiedemann, 1830**

Musca ventrosa Wiedemann, 1830: 656. Type locality: China.

Material examined. 1♀, Kuching, Semengkok W. R. C., 24.ix.2005, H. Kurahashi (SM).

***Myospila cincta* (Bigot, 1885)**

Hydrophoria cincta Bigot, 1885: 276. Type locality: Ternate, Moluccas [Indonesia].

Material examined. 1♀, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM).

***Myospila solensis* (Walker, 1857)**

Hydrotaea solensis Walker, 1857: 27. Type locality: Mount Ophir, Malaya [Malaysia].

Material examined. 2♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM); 2♀, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM).

***Myospila lenticeps* (Thomson, 1869)**

Anthomyia lenticeps Thomson, 1869: 553. Type locality: China (=Hong Kong).

Material examined. 1♀, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM); 4♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005 (3♀), 1–3.x.2005 (1♀), H. Kurahashi (SM); 3♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005, H. Kurahashi (SM); 1♀, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM); 1♀, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM).

***Neomyia timorensis* (Robineau-Desvoidy, 1830)**

Lucilia timoensis Robineau-Desvoidy, 1830: 460. Type locality: Timor [probably Indonesia].

Material examined. 1♂ 2♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005, H. Kurahashi (SM).

***Pygophora absentiseta* Crosskey, 1962**

Pygophora absentiseta Crosskey, 1962: 406. Type locality: Irian Jaya, Indonesia.

Material examined. 2♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005, H. Kurahashi (SM).

***Stomoxys calcitrans* (Linnaeus, 1758)**

Conops calcitrans Linnaeus, 1758: 604. Type locality: not given [probably Sweden].

Material examined. 1♂, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005, H. Kurahashi (SM).

Family CALLIPHORIDAE

Borbororhinia bivittata (Walker, 1856)

Idia bivittata Walker, 1856: 128. Type locality: Sarawak, Borneo [Malaysia].

Material examined. 1♀, Kuching, Kubah N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM); 1♂ 2♀, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM); 1♀, Serian, Mt. Sedong, Kamp. Tarat, 1–3.x.2005, H. Kurahashi (SM); 2♂ 4♀, Kubah N. P., < 50 m, 28.viii.2006 (1♂ 4♀), 2.ix.2006 (1♂), H. Kurahashi (SM).

Catapicephala micans (Fabricius, 1805)

Musca micans Fabricius, 1805: 291. Type locality: “India orientali”.

Material examined. 1♀, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM)

Chlororhinia exempta (Walker, 1856)

Musca exempta Walker, 1856: 128. Type locality: Sarawak, Borneo [Malaysia].

Material examined. 3♀, Serian, Mt. Sedong, Kamp. Tarat, 23 and 27.ix.2005 (1♀), 1–3.x.2005 (1♀), H. Kurahashi (SM); 1♀, Borneo Highlands, 4.ix.2006, H. Kurahashi (SM).

Chrysomya chani Kurahashi, 1979

Chrysomya chani Kurahashi, 1979: 288. Type locality: Bukit Timah Nature Reserve, Singapore.

Material examined. 3♂, Kuching, Semengok Wildlife Rehab. Centre, 24.ix.2005, H. Kurahashi (SM); 4♂ 9♀, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM); 2♂ 3♀, Serian, Mt. Sedong, Kamp. Tarat, 23 and 27.ix.2005 (2♂ 2♀), 1–3.x.2005 (1♀), H. Kurahashi (SM); 1♂ 1♀, nr Serian, Mt. Sedong, Kampung Tarat, 1.ix.2006 (1♀), 9.ix.2006 (1♂), H. Kurahashi (SM); 10♂ 4♀, Kuching, Kubah N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM).

Chrysomya defixa (Walker, 1857)

Musca defixa Walker, 1857: 24. Type locality: Singapore, Malaya [Singapore].

Material examined. 7♂ 4♀, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM); 1♂, Serian, Mt. Sedong, Kamp. Tarat, 23 and 27.ix.2005, H. Kurahashi (SM); 14♂ 4♀, Kuching, Kubah N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM).

Chrysomya megacephala (Fabricius, 1794)

Musca megacephala Fabricius, 1794: 317. Type locality: “Guinea” probaly error, according to Senior-White et al., 1940.

Material examined. 4♂ 3♀, Kuching, Semengok Wildlife Rehab. Centre, 24.ix.2005, H. Kurahashi (SM); 10♂ 12♀, Serian, Mt. Sedong, Kamp. Tarat, 23 and 27.ix.2005 (9♂ 8♀), 1–3.x.2005 (1♂ 4♀), H. Kurahashi (SM); 3♂ 5♀, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM); 1♂ 1♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM); 9♂ 10♀, Kuching, Kubah N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM).

Chrysomya nigripes Aubertin, 1932

Chrysomya nigripes Aubertin, 1932: 26. Type locality: Tricomalee, Ceylon [Sri Lanka].

Material examined. 1♂ 3♀, Kuching, Semengok Wildlife Rehab. Centre, 24.ix.2005, H. Kurahashi (SM); 7♂ 9♀, Serian, Mt. Sedong, Kamp. Tarat, 23 and 27.ix.2005 (2♂2♀), 1–3.x.2005 (5♂7♀), H. Kurahashi (SM); 1♂, Kuching, Kubah N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM); 1♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM).

***Chrysomya rufifacies* (Macquart, 1843)**

Lucilia rufifacies Macquart, 1843: 303 (146). Type locality: “Nouvelle-Hollande” [Australia].

Material examined. 3♂ 1♀, Serian, Mt. Sedong, Kamp. Tarat, 23 and 27.ix.2005, H. Kurahashi (SM); 2♂, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM); 1♂ 1♀, Kuching, Kubah N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM); 4♂, Kuching, Semengok Wildlife Rehab. Centre, 24.ix.2005, H. Kurahashi (SM).

***Chrysomya villeneuvi* Patton, 1922**

Chrysomya villeneuvi Patton, 1922: 567. Type locality: S. India.

Material examined. 2♂, Kuching, Semengok Wildlife Rehab. Centre, 24.ix.2005, H. Kurahashi (SM); 3♂, Kuching, Kubah N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM); 1♂ 1♀, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM); 1♂, Kuching, Kubah N. P., < 50 m, 2.ix.2006, H. Kurahashi (SM).

***Hemipyrellia ligurriens* (Wiedemann, 1830)**

Musca ligurriens Wiedemann, 1830: 655. Type locality: Java [Indonesia] and China.

Material examined. 1♂, Kuching, Semengok Wildlife Rehab. Centre, 24.ix.2005, H. Kurahashi (SM); 1♂, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM); 7♂, Serian, Mt. Sedong, Kamp. Tarat, 23 and 27.ix.2005 (6♂), 1–3.x.2005 (1♂), H. Kurahashi (SM); 2♂, nr Serian, Mt. Sedong, Kampung Tarat, 1.ix.2006 (1♂), 9.ix.2006 (1♂), H. Kurahashi (SM).

***Hypopygiopsis fumipennis* (Walker, 1856)**

Musca fumipennis Walker, 1856: 25. Type locality: Singapore, Malaya [Singapore].

Material examined. 2♂ 2♀, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM); 1♀, Serian, Mt. Sedong, Kamp. Tarat, 23 and 27.ix.2005, H. Kurahashi (SM); 1♂, nr Serian, Mt. Sedong, Kampung Tarat, 1.ix.2006, H. Kurahashi (SM).

***Hypopygiopsis violacea* (Macquart, 1835)**

Cynomyia violacea Macquart, 1835: 233. Type locality: Java [Indonesia].

Material examined. 2♂ 2♀, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM); 1♀, Kuching, Kubah N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM); 5♂ 2♀, Serian, Mt. Sedong, Kamp. Tarat, 23 and 27.ix.2005 (3♂2♀), 1–3.x.2005 (1♂), H. Kurahashi (SM).

***Idiella euidielloides* Senior-White, 1923**

Idiella euidielloides Senior-White, 1923: 166. Type locality: Shillong, Assam, India.

Material examined. 1♂, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM); 1♀, Serian, Mt. Sedong, Kamp. Tarat, 23 and 27.ix.2005, H. Kurahashi (SM).

***Isomyia viridaurea* (Wiedemann, 1819)**

Musca viridaurea Wiedemann, 1819: 22. Type locality: Java [Indonesia].

Material examined. 2♀, nr Serian, Mt. Sedong, Kampung Tarat, 9.ix.2006, H. Kurahashi (SM); 4♀, Serian, Mt. Sedong, Kampung Tarat, 1-3.x.2005, H. Kurahashi (SM).

***Lucilia calviceps* Bezzi, 1927**

Lucilia calviceps Bezzi, 1927: 238. Type locality: Espritu Santo and Epi Island, New Hebrides [Vanuatu].

Material examined. 1♂, Kuching, Kuba N. P. Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM); 2♂, nr Serian, Mt. Sedong, Kampung Tarat, 9.ix.2006, H. Kurahashi (SM) [1♂ > NSMT].

***Lucilia cuprina* (Wiedemann, 1830)**

Musca cuprina Wiedemann, 1830: 654. Type locality: China.

Material examined. 1♂, Kuching City, 3.x.2005, H. Kurahashi (SM); 1♂, Samarahan, Asajaya, < 5 m, 29.viii.2006, H. Kurahashi (SM).

***Lucilia papuensis* Macquart, 1842**

Lucilia papuensis Macquart, 1842: 298 (141). Type locality: D'Offak, terre des Papoux [PNG].

Material examined. 2♀, Kuching, Kubah N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM); 3♂ 4♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005 (1♀), 1-3.x.2005 (3♂ 3♀), H. Kurahashi (SM); 1♀, nr Serian, Mt. Sedong, Kampung Tarat, 1.ix.2006, H. Kurahashi (SM); 1♂ 1♀, Kuching, Bako N. P., < 50 m, 5.ix.2006, H. Kurahashi (SM); 3♂ 2♀, Kuching, Kubah N. P., < 50 m, 28.viii.2006 (1♀), 2.ix.2006 (3♂ 1♀), H. Kurahashi (SM).

****Onesia marina* Kurahashi and Magpayo, 2000**

Onesia marina Kurahashi and Magpayo, 2000: 14. Kanigarang Beach, Palawan, Philippines.

Material examined. 15♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM) [7♀ > NSMT(gift)]; 4♀, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM).

***Phumosia murphyi* Hii and Kurahashi, 1977**

Phumosia murphyi Hii and Kurahashi, 1977: 222. Type locality: Kota Kinabalu, Sabah, Malaysia.

Material examined. 2♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM).

***Phumosia nigronitens* (Senior-White, 1923)**

Caiusa nigronitens Senior-White, 1923: 38. Type locality: Singapore.

Material examined. 2♀, Kuching, Kubah N. P., < 50 m, 28.viii.2006, H. Kurahashi (SM).

***Stomorrhina discolor* (Fabricius, 1794)**

Musca discolor Fabricius, 1794: 320. Type locality: "Ind. Or."

Material examined. 4♀, Kuching, Semengok Wildlife Rehab. Centre, 24.ix.2005, H. Kurahashi (SM).

Strongyloneura prolata (Walker, 1860)

Idia prolata Walker, 1860: 133. Type locality: Makasar, Celebes [Indonesia].

Material examined. 1♀, Kubah N. P., <50 m, 2.ix.2006, H. Kurahashi (SM).

Tainanina javanica Kurahashi, 1978

Tainanina javanica Kurahashi, 1978: 6. Type locality: Puncak, Java, Indonesia.

Material examined. 2♀, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM).

Tainanina sarcophagoides (Malloch, 1931)

Calliphora sarcophagoides Malloch, 1931: 192. Type locality: Pahang, Malaya [Malaysia].

Material examined. 3♂, Kuching, Matang Wildlife Centre, 28.ix.2005, H. Kurahashi (SM); 2♀, Kuching, Kubah N. P., <50 m, 2.ix.2006, H. Kurahashi (SM).

****Wilhelmina nepenthicola*** Schmitz and Villeneuve, 1932

Wilhelmina nepenthicola Schmitz and Villeneuve, 1932: 116. Type locality: Pontianak, Borneo [Indonesia].

Material examined. 1♀, Kuching, Bako N. P., 26.ix.2005, Y. Higa (SM).

Family SARCOPHAGIDAE

Alisarcophaga gressitti (Hall and Bohart, 1948)

Sarcophaga gressitti Hall and Bohart, 1948: 131. Type locality: Point Ritidan, Guam.

Material examined. TALANG TALANG BESAR I: 1♂ 2♀, , 6.ix.2006, H. Kurahashi (SM) [1♂ 1♀ > NSMT (gift)]; 2♂ 1♀, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM).

Boettcherisca javanica Lopes, 1961

Boettcherisca javanica Lopes, 1961: 79. Type locality: Soekaboemie, Java [Indonesia].

Material examined. 1♂, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM); 1♂, Kuching, Kubah N. P., <50 m, 28.viii.2006, H. Kurahashi (SM); 2♂, nr Serian, Mt. Sedong, Kampung Tarat, 9.ix.2006, H. Kurahashi (SM) [1♂ > NSMT (gift)]; 2♂, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM); 7♂, Serian, Mt. Sedong, Kampung Tarat, 23, 27.ix.2005 (2♂), 1–3.x.2005 (5♂), H. Kurahashi (SM); 1♂, Kuching, Semengok W. R. C., 24.ix.2005, H. Kurahashi (SM). TALANG TALANG BESAR I: 2♂, 6.ix.2006, H. Kurahashi (SM) [1♂ > NSMT (gift)].

Boettcherisca karnyi (Hardy, 1927)

Sarcophaga karnyi Hardy, 1927: 454. Type locality: "Buitenzorg" [Bogor, Java, Indonesia].

Material examined. 1♂, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM); 10♂, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM) [3♂ > NSMT (gift)]; 1♂, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM); 3♂, Kuching, Semengok W. R. C., 24.ix.2005, H. Kurahashi (SM) [1♂ > NSMT (gift)]; 7♂, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM) [3♂ > NSMT (gift)]; 1♂, nr Serian, Mt. Sedong, Kampung Tarat, 9.ix.2006, H. Kurahashi (SM). TALANG TALANG BESAR I: 2♂, 6.ix.2006, H. Kurahashi (SM).

Boettcherisca krathonmai Pape and Bänziger, 2000

Sarcophaga (Boettcherisca) krathonmai Pape and Bänziger, 2000: 204. Type locality: Khlong Naka Wildlife Sanctuary, Phya Nak Falls, Ranong Province, Thailand.

Material examined. 2♂, nr Serian, Mt. Sedong, Kampung Tarat, 1.ix.2006 (1♂), 9.ix.2006 (1♂), H. Kurahashi (SM) [1♂ > NSMT (gift)]; 3♀, Kuching, Kubah N. P., < 50 m, 28.viii.2006 (1♀), 2.ix.2006 (2♀), H. Kurahashi (SM) [1♀ > NSMT (gift)]; 1♀, Kuching, Kuba N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM) [1♀ > NSMT]; 36♂ 41♀, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM) [16♂ 17♀ > NSMT (gift)]; 3♂, Kuching, Kuba N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM) [1♂ > NSMT (gift)]; 1♂, Kuching, Semengok W. R. C., 24.ix.2005, H. Kurahashi (SM) [1♂ > NSMT (gift)]; 4♂, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM).

Boettcherisca peregrina (Robineaiu-Desvoidy, 1830)

Myophora peregrina Robineau-Desvoidy, 1830: 356. Type locality: Port Jackson nr Sydney, New South Wales, Australia.

Material examined. 1♀, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM); 1♂, Kuching, Semengok W. R. C., 24.ix.2005, H. Kurahashi (SM); 2♀, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM). TALANG TALANG BESAR I: 1♂, 6.ix.2006, H. Kurahashi (SM).

****Lioproctia saprianovae*** (Pape and Bänziger, 2000)

Sarcophaga (Lioproctia) saprianovae Pape and Bänziger, 2000: 202. Type locality: Khlong Naka Wildlife Sanctuary, Phya Nak Falls, Ranong Province, Thailand.

Material examined. 81♂ 81♀, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM) [77♂ 77♀ > NSMT].

Liopygia ruficornis (Fabricius, 1794)

Musca ruficornis Fabricius, 1794: 314. Type locality: "India orientali" [SE Asia].

Material examined. 1♀, Kuching, Sarawak Museum, 30.viii.2006, H. Kurahashi (SM).

Metopia argyrocephala (Meigen, 1824)

Tachina argyrocephala Meigen, 1824: 372. Type locality: Europe [probably Germany].

Material examined. 3♂, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM) [1♂ > NSMT (gift)]; 2♂, Kuching, Kubah N. P., < 50 m, 2.ix.2006, H. Kurahashi (SM) [1♂ > NSMT (gift)].

Metopia sauteri (Townsend, 1932)

Chetanicia sauteri Townsend, 1932: 446. Type locality: Hengchun (Gangkou) ["Koshun (Kankau)], Taiwan.

Material examined. 1♂, Serian, Mt. Sedong, Kampung Tarat, 23, 27.ix.2005, H. Kurahashi (SM).

Myorhina borneensis (Shinonaga and Lopes, 1975)

Thyrsoecema (Pseudothyrsoecema) borneensis Shinonaga and Lopes, 1975: 463. Type locality: 19 km N Kalabakan, Tawau District, Sabah, Malaysia.

Material examined. 4♂ 1♀, nr Serian, Mt. Sedong, Kampung Tarat, 9.ix.2006, H. Kurahashi (SM) [2♂ 1♀ > NSMT].

***Parasarcophaga albiceps* (Meigen, 1826)**

Sarcophaga albiceps Meigen, 1826: 22. Type locality: Europe [probably Germany].

Material examined. 6♂, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM) [2♂ > NSMT (gift)]; 1♂, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM); 3♂, nr Serian, Mt. Sedong, Kampung Tarat, 9.ix.2006, H. Kurahashi (SM) [1♂ > NSMT]; 1♂, Kuching, Matang Wildlife Centre, 29.ix.2005, H. Kurahashi (SM).

***Parasarcophaga brevicornis* (Ho, 1934)**

Sarcophaga brevicornis Ho, 1934: 23. Type locality: Beijing, China.

Material examined. 7♂, Borneo Highlands, 4.ix.2006, H. Kurahashi (SM) [3♂ > NSMT]; 1♂, nr Serian, Mt. Sedong, Kampung Tarat, 9.ix.2006, H. Kurahashi (SM); 4♂, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM); 1♂, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM); 1♂, Kuching, Semengok W. R. C., 24.ix.2005, H. Kurahashi (SM).

***Parasarcophaga dux* (Thomson, 1869)**

Sarcophaga dux Thomson, 1869: 534. Type locality: Oahu, Hawaiian Is.

Material examined. 2♂, Samarahan, Asajaya, < 5 m, 29.viii.2006, H. Kurahashi (SM) [1♂ > NSMT (gift)]; 1♂, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM); 2♂, Borneo Highlands, 4.ix.2006, H. Kurahashi (SM) [1♂ > NSMT (gift)]. TALANG TALANG BESAR I.: 4♂, 6.ix.2006, H. Kurahashi (SM) [2♂ > NSMT (gift)].

***Parasarcophaga lopesi* Verves, 1980**

Parasarcophaga (Baliisca) lopesi Verves, 1980: 39. Type locality: Sendeh nr Danpassar, Bali, Indonesia.

Material examined. 5♂, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM) [1♂ > NSMT (gift)]; 11♂, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM) [5♂ > NSMT (gift)].

***Parasarcophaga misera* (Walker, 1849)**

Sarcophaga misera Walker, 1849: 829. Type locality: "New Holland" [Australia].

Material examined. 2♂, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005 (1♂), 1–3.x.2005 (1♂), H. Kurahashi (SM); 4♂, Kuching, Bako N. P., 26.ix.2005, H. Kurahashi (SM) [1♂ > NSMT (gift)]; 1♂, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM) [1♂ > NSMT (gift)]; 1♂, Samarahan, Asajaya, < 5 m, 29.viii.2006, H. Kurahashi (SM); 2♂, Borneo Highlands, 4.ix.2006, H. Kurahashi (SM) [1♂ > NSMT].

***Parasarcophaga omari* sp. nov.**

♂. –Head: dichoptic; frons index 0.17–0.18 (n=3); frontal stripe black; parafacial yellowish-grey pollinose; antenna blackish, 3rd segment 2.5 x as long as 2nd; gena black, grey pollinose, with numerous black hairs, ca. 1/6 of height of eye (HE); postgena with numerous yellowish white hairs; *ori* 11–13, lower 2–3 divergent; first and second rows of postocular/postorbital setae regular, but other rows irregular. Palpus black, slender, with black bristles and hairs.

Thorax: black, grey to brownish grey pollinose, with 3 black longitudinal stripes on scutum; propleuron bare; prosternum hairy on posterior 1/2; mesothoracic spiracle blackish. Chaetotaxy: *ac* 0+1; *dc* 5+5; *ia* 1+2; *h* 3; *ph* 2, *prs* 1; *sa* 3; *n* 4; *pa* 2; *sc* 3+1; *st* 1+1+1.

Wings: hyaline, slightly brownish-tinged along veins; epaulet blackish; basicosta creamy white; vein *R*₁ bare; vein *R*₄₊₅ with row of 10 short setulae extending 1/2 way from basal node to r-m above; several setulae present on node of veins *R*₂₊₃ and *R*₄₊₅ below; *CS*₃ slightly longer than *CS*₅;

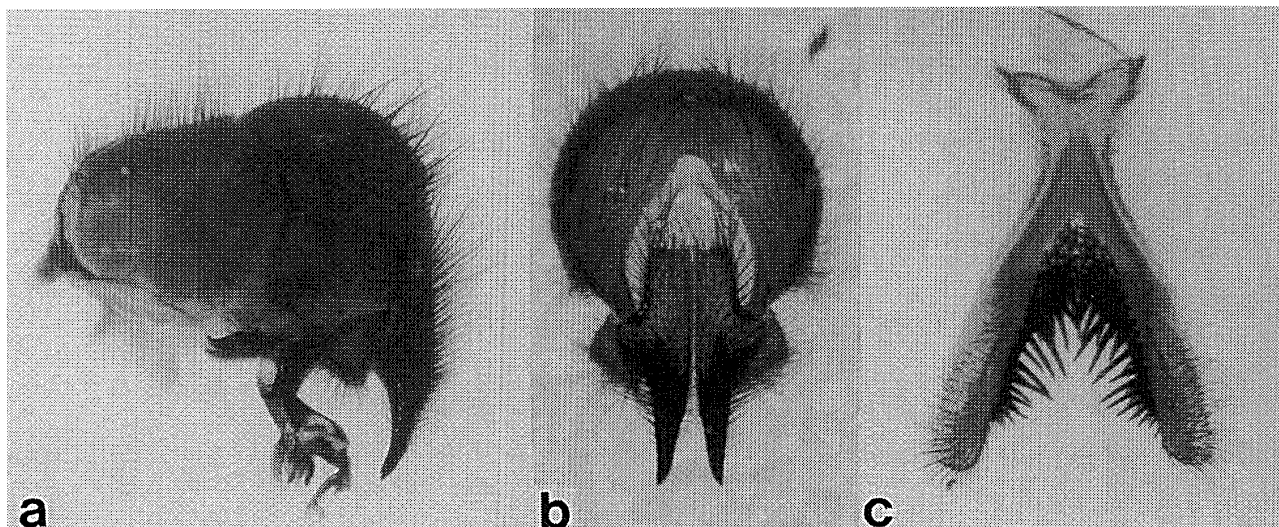


Fig. 1. *Parasarcophaga omari* sp. nov., male copulatory apparatus.—a, male terminalia, lateral view; b, epandrium, cercus and surstylus, caudal view; c, fifth sternite, ventral view.

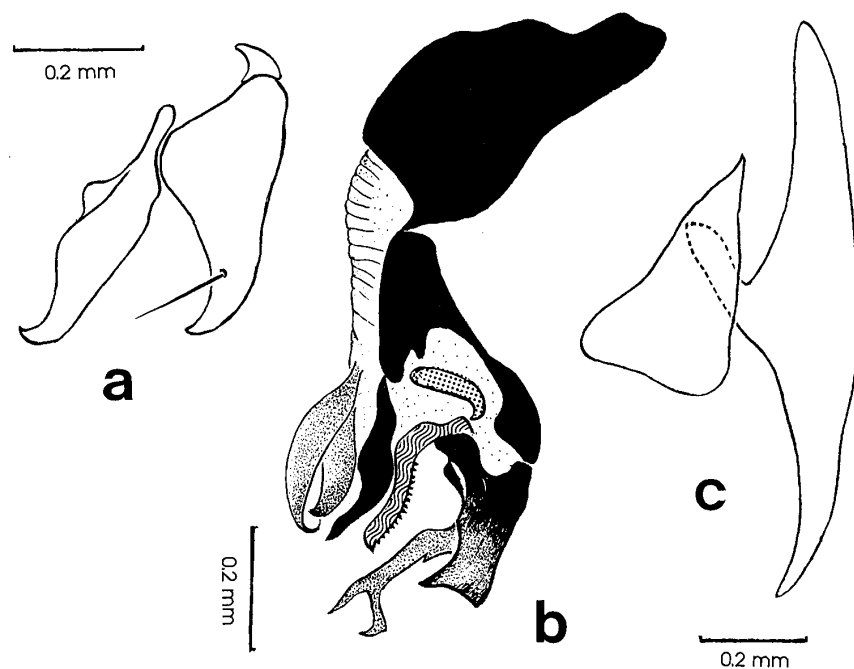


Fig. 2. *Parasarcophaga omari* sp. nov., male genitalia.—a, pregonite and postgonite, lateral view; b, aedeagus, lateral view; c, surstylus and cercus, lateral view.

CS₅ with short spines along anterior margin on basal 4/7. Alar and thoracic squamae both pale brown, alar squama with tuft of fuscous brown hairs on inner lower margin. Halter blackish, fuscous brown on basal 1/2.

Legs: black; fore femur with 2 rows of long *pd*, row of long *pv*; fore tibia with 2 short *ad* basally, 1 *p* at apical 1/3; mid femur with numerous long hairs on basal 2/3 of posteroventral surface, 2–3 strong *a* present along median longitudinal line, 2 *p-pd* apically, row of rather strong *av* basally, rows of short *av* and *pv* apically; mid tibia with 1 submedian *ad*, 2 long *pd*, 1 *p* and 1 *v* present at apical 1/3; hind femur with 2 rows of *ad*, row of *av*, and 2 *p-pd* apically, numerous short hairs present on antero- and posteroventral surfaces; hind tibia with 2 *ad*, 2 *pd*, and 1 *av* at apical 1/3, without distinct fringe, 1 fine submedian *av* and 6–7 short *pv* present, no fringe.

Abdomen: black, grey to yellowish grey pollinose, tessellate; tergite 3 without marginal bristle; tergite 4 with pairs of median and 2–3 lateral marginal bristles; tergite 5 with row of marginal bristles; sternite 5 of Y-shape; GS₁ fuscous black, slightly greyish pollinosed, with several fine

lateral marginal bristles; epandrium (GS₂) black shining; GS₁ and GS₂ with numerous black hairs. Hypopygium: as shown in Fig. 2.

♀. -Unknown.

Length: 10.8–11.8 mm.

Type material. Holotype: ♂, "Holotype [red card]//MALAYSIA: SARAWAK: nr/Serian, Mt. Sedong/Kampung Tarat/9.ix.2006/Coll. H. Kurahashi//Parasarcophaga ♂/omari/sp. nov./det. H. Kurahashi [red perimeter]", NSMT-Dip-4493, with a small tube containing dissected genitalia. Paratypes: with "Paratype [yellow card] and identification label [blue perimeter]//Parasarcophaga ♂/omari/sp. nov./det. H. Kurahashi". MALAYSIA: SARAWAK: 6♂, Serian, Mt. Sedong, Kampung Tarat, 23, 27.ix.2005 (2♂), 1–3.x.2005 (4♂), H. Kurahashi (SM); 3♂, Borneo Highlands, 30.ix.2005, H. Kurahashi (SM); 5♂, nr Serian, Mt. Sedong, Kampung Tarat, 1.ix.2006 (2♂), 9.ix.2006 (3♂), H. Kurahashi (SM).

Etymology. The specific epithet is named in honour of Dr. B. Omar, Department of Parasitology, University Kebangsaan Malaysia, Kuala Lumpur.

Type depository. Holotype and five paratypes are deposited in National Science Museum, Tokyo. Nine paratypes separately in Sarawak Museum, Kuching.

Remarks. The present new species is similar to *Parasarcophaga montiblensis* Sugiyama, 1990 from Palawan, Philippines and *P. scopariiformis* (Senior-White, 1927) from Sri Lanka in general appearance (Sugiyama et al., 1990, Figs. 4–7; Fan, 1992, Fig. 1394; Nandi, 2002, Figs. 508–512), but easily distinguished from the previous known species by the characteristic shape of male genitalia having the truncate apex of juxta in lateral view (Fig. 2b).

Bionomics. *Parasarcophaga omari* sp. nov. seems to be indigenous in Borneo. Small numbers of male flies were collected along mountain path in natural forests around Kuching.

Distribution. Malaysia (Sarawak).

***Sarcophaga* (s.l.) *aquila* Sugiyama, 1990**

Sarcophaga (s.l.) *aquila* Sugiyama, 1990: 82. Type locality: Sentosa Is., Singapore.

Material examined. 2♂, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM) [1♂ > NSMT (gift)].

***Sarcophaga* (s.l.) *longifilia* Salem, 1945**

Sarcophaga (s.l.) *longifilia* Salem, 1945: 189. Type locality: Christmas I. [Indian Ocean].

Material examined. 7♂ 1♀, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM) [3♂ 1♀ > NSMT].

***Sarcorohdendorfia inextricata* (Walker, 1859)**

Sarcophaga inextricata Walker, 1859: 132. Type locality: Ujung Pandang, Sulawesi, Indonesia.

Material examined. 1♂, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM).

***Sarcosolomonina crinita* (Parker, 1917)**

Sarcophaga crinita Parker, 1917: 92. Type locality: Philippines.

Material examined. 1♂, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM); 1♂, Kuching, Kuba N. P., Mt. Serapi, 500 m, 22.ix.2005, H. Kurahashi (SM); 1♂, Kuching, Kubah N. P., <50 m, 2.ix.2006, H. Kurahashi (SM); 4♂,

Borneo Highlands, 30.ix.2005, H. Kurahashi (SM); 2♂, Borneo Highlands, 4.ix.2006, H. Kurahashi (SM); 8♂ 7♀, nr Serian, Mt. Sedong, Kampung Tarat, 1.ix.2006, H. Kurahashi (SM) [4♂ 3♀ > NSMT]; 14♂ 4♀, nr Serian, Mt. Sedong, Kampung Tarat, 1.ix.2006 (9♂), 9.ix.2006 (5♂ 4♀), H. Kurahashi (SM) [7♂ 2♀ > NSMT (gift)]. TALANG TALANG BESAR I.: 1♂, 6.ix.2006, H. Kurahashi (SM).

***Senotainia navigatrix* (Meigen, 1910)**

Macronychia navigatrix Meijere, 1910: 111. Type locality: Lang I., Krakatau, Sumatra, Indonesia.

Material examined. 1♂, Kuching, Bako N. P., 5.ix.2006, H. Kurahashi (SM).

Family TACHINIDAE

***Argyrophylax fumipennis* (Townsend, 1926)**

Malayodoria fumipennis Townsend, 1926: 35. Type locality: Fort de Kock, Sumatra [Indonesia].

Material examined. 1♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005, H. Kurahashi (SM).

***Ocytermomima orientalis* (Townsend, 1928)**

Orilliopsis orientalis Townsend, 1928: Type locality: Mt. Makiling, [Luzon] Philippines.

Material examined. 1♂ 1♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005, H. Kurahashi (SM); 3♂ 2♀, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005 (1♂), 1–3.x.2005 (1♂), 1.ix.2006 (1♂ 1♀), 9.ix.2006 (1♀), H. Kurahashi (SM) [2♂ 1♀ > NSMT].

***Peribaea orbata* (Wiedemann, 1830)**

Tachina orbata Wiedemann, 1830: 336. Type locality: "Ostindien" (of neotype Azra, [Assam, India].

Material examined. 1♀, Kuching, Kuba N. P., < 50 m, 2.ix.2006, H. Kurahashi (SM).

***Thecocarcelia ochracea* Shima, 1998**

Thecocarcelia ochracea Shima, 1998: 155. Type locality: 50 km SW Kota Kinabalu, Papar, Sabah, Malaysia.

Material examined. 1♀, Serian, Mt. Sedong, Kampung Tarat, 1–3.x.2005, H. Kurahashi (SM) [1♀ > NSMT].

***Thecocarcelia sumatrana* (Baranov, 1932)**

Sturmia sumatrana Baranov, 1932: 1. Type locality: Medan, Sumatra [Indonesia].

Material examined. MALAYSIA: BORNEO: 1♀, Borneo Highlands, 4.ix.2006, H. Kurahashi (SM).

****Uromedina atrata* (Townsend, 1927)**

Arrhinodexia atrata Townsend, 1927: 283. Sokutsu and Tappani, Formosa [Taiwan].

Material examined. 1♂, Serian, Mt. Sedong, Kampung Tarat, 23 and 27.ix.2005, H. Kurahashi (SM) [1♂ > NSMT].

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